

## Platina Cleansed by Acids and Alkalies 93

formed or deposited there; and this, and much less than this, is sufficient to prevent it from exhibiting the curious power now under consideration (370,, 372). Platina also has been said to combine with carbon; and it is not at all unlikely that in processes of heating, where carbon or its compounds are present, a film of such a compound may be thus formed, and thus prevent the exhibition of the properties belonging to pure platina.

335. The action of alkalies and acids in giving platina this property was now experimentally examined. Platina plates (305) having no action on mixed oxygen and hydrogen, being boiled in a solution of caustic potassa, washed, and then put into the gases, were found occasionally to act pretty well, but at other times to fail. In the latter case I concluded that the impurity upon the surface of the platina was of a nature not to be removed by the mere solvent action of the alkali, for when the plates were rubbed with a little emery, and the same solution of alkali (328), they became active.

336. The action of acids was far more constant and satisfactory. A platina plate was boiled in dilute nitric acid: being washed and put into mixed oxygen and hydrogen gases, it acted well. Other plates were boiled in strong nitric acid for periods extending from half a minute to four minutes, and then being washed in distilled water, were found to act very well, condensing one cubic inch and a half of gas in the space of eight or nine minutes, and rendering the tube warm (306).

337. Strong sulphuric acid was very effectual in rendering the platina active. A plate (305) was heated in it for a minute, then washed and put into the mixed oxygen and hydrogen, upon which it acted as well as if it had been made the positive pole of a voltaic pile (306).

338. Plates which, after being heated or electrified in alkali, or after other treatment, were found inert, immediately received power by being dipped for a minute or two, or even only for an instant, into hot oil of vitriol, and then into water.

339. When the plate was dipped into the oil of vitriol, taken out, and then heated so as to drive off the acid, it did not act, in consequence of the impurity left by

the acid upon its surface.  
i 340. Vegetable acids, as acetic  
and tartaric, sometimes  
rendered inert platina active, at other  
times not. This, I believe,

<sup>1</sup> When heat does confer the property it is only by the  
destruction or  
dissipation of organic or other matter which had  
previously soiled the  
plate (368, 369, 370).—December 1838.